Remarks

Claims 1, 3, 4, 6, 8, 18, 20-26, 29-32, 34-41, 43-45 and 47-59 were pending. Claims 1, 3, 4, 6, 8, 18, 20-26, 29-32, 34-39, 44 and 49-59 were withdrawn as being drawn to non-elected inventions.

By this amendment, claims 40, 41 and 48 are amended. Support for these claim amendments can be found throughout the specification and the claims as originally filed. Claims 60 and 61 are new. Support for claim 60 can be found throughout the specification, including page 30, line 28 – page 31, line 6. Support for claim 61 can be found throughout the specification, including page 43, line 19-22. Claims 1, 3, 4, 6, 8, 18, 20-26, 29-32, 34-39, 43, 45, 47 and 49-59 have been canceled without prejudice.

No new matter is introduced by the foregoing amendments. After entry of this amendment, 40, 41, 48, 60 and 61 **are pending in the application**. Reconsideration of the pending claims is respectfully requested.

Title

As requested in the Office action, the Title of the application has been amended to be directed to the elected invention, that is, SCREENING FOR AGENTS THAT DECREASE PATHOGENICITY BY DECREASING RAB11A ACTIVITY.

Drawings

As requested in the Office action, the specification has been updated to properly refer to the SEQ ID NO of the sequence presented in Figure 3A. Applicants also submit herewith an amended sequence listing and statement in compliance. As such, Applicants believe that the specification is now in compliance with 37 C.F.R. § 1.81(d).

Abstract

As requested by the Office, the abstract has been re-submitted due to the confusion of two abstracts being submitted on the same day.

Specification Objections

The specification is objected to for allegedly disclosing sequences that are not identified by a sequence identifier number (SEQ ID NO:). The specification has been reviewed and amended so that all nucleotide sequences with ten or more bases and all amino acid sequences with four or more amino acids are identified by a specific SEQ ID NO. Therefore, Applicants believe that the specification is now in compliance with 37 C.F.R. § 1.81(d).

Claim Objections

Claims 40, 41, 43, 45, 47 and 48 are objected to for encompassing or depending from a claim that encompasses non-elected subject matter. Although Applicants disagree with the Examiner's comments on page 2, Sections (B) and (C) of the Office Action, in order to further prosecution. claim 40 has been amended to recite Rab11A and Rab11A enzymatic activity. Claims 43, 45 and 47 have been canceled. Applicants believe that these amendments render the pending objections moot.

Claim Rejections:

35 U.S.C. § 112, second paragraph

Claims 40, 41, 43 and 45-48 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite. In particular, claim 40 is alleged to be indefinite for reciting the phrase "Rab11A target." Further, claims 41, 43, and 45-48, as dependent from claim 40, are alleged to be indefinite for the same reason. Claim 40 has been amended to recite "a Rab11A gene product". Claims 43, 45 and 47 have been canceled. Claim 46 was previously canceled in the response to restriction requirement submitted on September 8, 2008. Applicants believe that the pending claims are definite and request that the pending 35 U.S.C. §112, second paragraph, rejection be withdrawn.

35 U.S.C. § 112, first paragraph

(a) Enablement:

Claims 40, 41, 43, 45, 47 and 48 have been rejected under 35 U.S.C. §112, first paragraph as allegedly not being enabled by the specification in which the Office alleges it would require

undue experimentation to determine which pathogens to test. In particular, the Office contends that while "methods for determining if a pathogen acts *via* Rab11A are known in the art, it is not routine in the art to screen an essentially unlimited number of pathogens for pathogenicity *via* Rabl1A." The Office further contends that "without knowing whether a particular pathogen acts via Rab11A, any result from measuring the effect of a test agent on Rab11A enzymatic GTPase activity cannot predict an effect of the test agent on the pathogenicity of the pathogen."

Claims 43, 45 and 47 are canceled herein rendering the rejection of these claims moot. Solely in order to expedite prosecution, claim 40 (and therefore all claims that depend therefrom) has been amended to recite that the claimed method is a method of identifying an agent that decreases pathogenicity of a retrovirus. Therefore, the claims as presented herein are not directed to any pathogen, but to a retrovirus. Applicants respectfully, but adamantly disagree with the pending enablement rejection as it may be applied to the amended claims for at least the following reasons.

Applicants respectfully submit that the standard for enablement being applied herein is not proper. First, the Office has failed to appreciate a primary purpose of a screening claim, which is to identify new properties of compounds. If one were to be required to know that a compound prior to screening possessed a certain property, such as altering pathogenicity of a pathogen *via* Rab11A (as the Office is currently requiring), then there would be no reason to perform the screening assay because such property had already been identified. Further, if this were the proper standard for enablement, screening claims would no longer be patentable since it would never be able to satisfy the novelty and non-obviousness requirements. As such, Applicants remind the Office "[t]he test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue" (citing *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976)). Here, although routine assays may be required in order to select optimal screening conditions of the claimed invention, no undue experimentation is required to practice the full scope of the invention. Applicants submit that the emphasis in this test is on "undue," and not on "experimentation" (see *In re Wands*, 858 F.2d 731, 736-40 (Fed. Cir. 1988)). As the Office is no doubt aware, the determination of what is

meant by "undue experimentation" has been characterized by the Federal Circuit as follows (*Genentech, Inc.* v. *Novo Nordisk A/S*, 108 F.3d at 1365):

> [t]he test [for undue experimentation] is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the claimed invention.

In the current case, any necessary experiment is merely routine, and thus not undue. The specification provides numerous exemplary methods for identifying agents that alter the pathogenicity of a retrovirus by measuring Rab11a enzymatic activity, including page 39, line 17 – page 41, line 29; and Examples 10, 12, and 13 (in particular, page 74, lines 29-36). All of these methods are routine and known to those of ordinary skill in the art. Therefore, it is believed that any experiment is well within the limits set by the *Genentech* court.

Applicants also remind the Office of MPEP 2164.02, which states "...because only an enabling disclosure is required, applicant need not describe all actual embodiments." Though not explicitly stated in the Office action, it appears that the Office is requiring Applicants to describe all actual embodiments in the current case, which is not necessary in light of the enabling disclosure provided in the specification. As such, Applicants believe that the claims as presented herein are fully enabled by the specification and satisfy the enablement requirement of 35 U.S.C. §112, first paragraph.

(b) Written Description

Claims 40, 41, 43, 45, 47 and48 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to satisfy the written description requirement. In rejecting claims 40, 41 and 46-48, the Office contends that these claims are "directed to a genus of methods for identifying an agent that decreases pathogenicity of any pathogen, wherein the method measures a decrease in Rab11a enzymatic GTPase activity. The specification teaches no such methods." Applicants respectfully disagree with this rejection for at least the following reasons. Claims 43, 45 and 47 are canceled herein rendering the rejection of these claims moot. Claim 40 (and

therefore all claims that depend therefrom) has been amended to recite that that the claimed method is a method of identifying an agent that decreases pathogenicity of a retrovirus. Therefore, the claims as presented herein are not directed to any pathogen, but to a retrovirus. Moreover, as stated above, the specification provides written support for numerous exemplary methods for identifying agents that alter the pathogenicity of a retrovirus by measuring Rab11a enzymatic activity, including page 39, line 17 – page 41, line 29; and Examples 10, 12, 13 (in particular, page 74, lines 29-36) and provides guidance as to what retroviruses are to be screened (see at least page 30, line 28 – page 31, line 6). Further, as noted by the Office on page 9 of the Office action, enzymatic assays, such as GTPase enzymatic assays, are well known in the art. Therefore, one of ordinary skill in the art would understand how to perform the claimed method *i.e.*, identify agents that alter the pathogenicity of a retrovirus by measuring Rab11a enzymatic activity and would recognize that Applicants were in possession of the claimed invention at the time of filing. Therefore, the pending claims are sufficiently described by the specification. Applicants believe that the amended claims comply with the written description requirement.

For all of these reasons, Applicants request that the pending 35 U.S.C. §112, first paragraph, rejections of claims 40, 41 and 48 be withdrawn.

35 U.S.C. § 103(a)

Claims 40, 41, 43, 45, 47 and 48 are rejected under 35 U.S.C. §103(a) as allegedly being obvious over Brock *et al.*, *PNAS* 100(25):15143-15148, 2003 (Brock *et al.*) in view of Gibbs *et al.*, *J. Biol. Chem.*, 265(33): 20437-20442, 1990 (Gibbs *et al.*) as evidenced by Marty *et al.*, *Arch. Virol.* 149: 199-210, 2004 (Marty *et al.*). Applicants traverse these rejections. Claims 43, 45 and 47 are canceled herein rendering the rejection of these claims moot.

In rejecting claims 40, 41 and 48, the Office contends that Brock *et al.* "teach a method for identifying agents, myosin Vb tail and Rab11AFIP1, which decrease pathogenicity of RSV by contacting the agents with Rab11A, wherein the method measures RSV replication (Figures 2 and 6)." The Office cites Gibbs *et al.* as allegedly teaching a method for measuring enzymatic GTPase activity using immunoprecipitation followed by chromatography (pages 5-7; Figures 1 - 3).

The Cited References Do Not Teach the Elements Present in Claims 40, 41 and 48 and Constitute a Teaching Away

Brock *et al.* teach that RSV requires proper apical recycling endosome (ARE) function for efficient egress from the apical surface of polarized epithelial cells. Claim 40 (and therefore all claims that depend therefrom) has been amended to recite that that the claimed method is a method of identifying an agent that decreases pathogenicity of a retrovirus. Further, claim 48 has been amended to recite wherein the retrovirus comprises HIV-1, HIV-2, equine infectious anemia virus, FIV, FeLV, simian immunodeficiency virus or avian sarcoma virus. Nowhere do Brock *et al.* teach or suggest a method of identifying agents that decrease the pathogenicity of a retrovirus by measuring Rab11A enzymatic activity as presently claimed. Therefore, Brock *et al.* fail to teach all of the elements of the pending claims.

Brock *et al.* not only fail to teach a method of identifying an agent that decreases pathogenicity of a retrovirus by measuring Rab11A as presently claimed, their findings teach away from such method. As demonstrated in Figure 6, Rab11-FIP1 expression inhibits RSV (a member of the *Paramyxoviridae* virus family) replication, but not vaccinia virus (a member of the *Poxvirus* family) replication. Thus, these findings would not motivate one of skill in the art to try to identify agents capable of decreasing pathogenicity of another virus such as a retrovirus by modifying the teachings of Brock *et al.* because the teachings of Brock *et al.* are specific to RSV. Thus, Brock *et al.* constitutes a teaching away from the present claims.

The secondary reference Gibbs *et al.* (as evidenced by Marty *et al.*), cannot and does not make up for the deficiencies found in Brock *et al.* Gibbs *et al.* (as evidenced by Marty *et al.*) teach a method for measuring enzymatic GTPase activity using immunoprecipitation followed by chromatography (Figures 1 -3). Nowhere do any of these references teach or suggest that agents capable of decreasing pathogenicity of retroviruses can be identified by measuring Rab11A enzymatic activity as presently claimed. Therefore, the cited references, either alone or in combination, fail to teach all of the elements of the pending claims and thus, do not establish a *prima facie* case of obviousness with respect to these claims. Claims 40, 41 and 48 are therefore

allowable in view of the cited references and Applicants request that the rejection of these claims be withdrawn.

Newly Added Claims 60 and 61

Newly added claim 60 depends from claim 48 which depends from claim 40. As such, claim 60 satisfies the criteria for patentability for at least the same reasons presented above for such claims. Therefore, claim 60 is allowable in view of the cited references. Similarly, claim 61 depends from claim 40 and also satisfies the criteria set forth above. Therefore, claim 61 is allowable in view of the cited references.

Conclusion

Based on the foregoing amendments and arguments, the claims are in condition for allowance and notification to this effect is requested. The Examiner is formally requested to contact the undersigned prior to issuance of the next Office action, in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 595-5300
Facsimile: (503) 595-5301

By /Karri Kuenzli Bradley/
Karri Kuenzli Bradley, Ph.D.
Registration No. 56,300